SPRINGDALE ACRES (PWS 5160056)
SOURCE WATER ASSESSMENT FINAL REPORT

October 7, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for Springdale Acres, Burley, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Springdale Acres drinking water system (PWS 5160056) consists of one well. The system serves approximately 31 people through 14 connections. The well is located to the east of the city of Burley approximately 5 miles(Figure 1).

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

Overall, the well's susceptibility ratings are high for IOCs, VOCs and SOCs, and automatically high for microbial contaminants(Table 2). The automatic ratings result from a detection of total coliform bacteria (May 1998) in the well. Hydrologic sensitivity and system construction scores rated moderate, and land use scores rated high for IOCs, VOCs, SOCs, and moderate for microbials.

No VOCs or SOCs have ever been detected in the water. The only IOCs detected have been barium, fluoride, nitrate, and arsenic. Barium and fluoride have been detected in quantities significantly below their maximum contaminant levels (MCLs) as set by EPA. Arsenic has been detected as high as 3 parts per billion (ppb), below its revised MCL of 10 ppb. Nitrate quantities have been consistently detected below 1.4 parts per million (ppm), significantly below its MCL of 10 ppm. Detections of total coliform have occasionally occurred in the distribution system, but also occurred in the well in May 1998.

County level nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. In addition, the delineation falls within a nitrate priority area and an SOC priority area for the pesticide Atrazine.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Springdale Acres, drinking water protection activities should first focus on correcting any deficiencies outlined in the 1993 Sanitary Survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). No chemicals should be stored or applied within the 50-foot radius of the wellhead. There are potential contaminant sources within the delineated area, therefore Springdale Acres should focus on managing hazardous material on-site in a proper manner. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water area should be implemented. As most of the designated areas are outside the direct jurisdiction of Springdale Acres, partnerships with state and local agencies, and industry groups should be established, and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system with a fully developed drinking water protection program will incorporate many strategies, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR SPRINGDALE ACRES, BURLEY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Springdale Acres drinking water system (PWS 5160056) consists of one well. The system serves approximately 31 people through 14 connections. The well is located approximately 5 miles to the east of the city of Burley approximately 5 miles.

No VOCs or SOCs have ever been detected in the water. The only IOCs detected have been barium, fluoride, nitrate, and arsenic. Barium and fluoride have been detected in quantities significantly below their MCLs, as set EPA. Arsenic has been detected as high as 3 ppb, well below its revised MCL of 10 ppb. Nitrate quantities have been consistently detected below 1.4 ppm, significantly below its MCL of 10 ppm. Total coliform has been detected in the well (May 1998) and occasionally in the distribution system.

County level nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. In addition, the delineation falls within a nitrate priority area and an SOC priority area for the pesticide Atrazine.

Defining the Zones of Contribution – Delineation

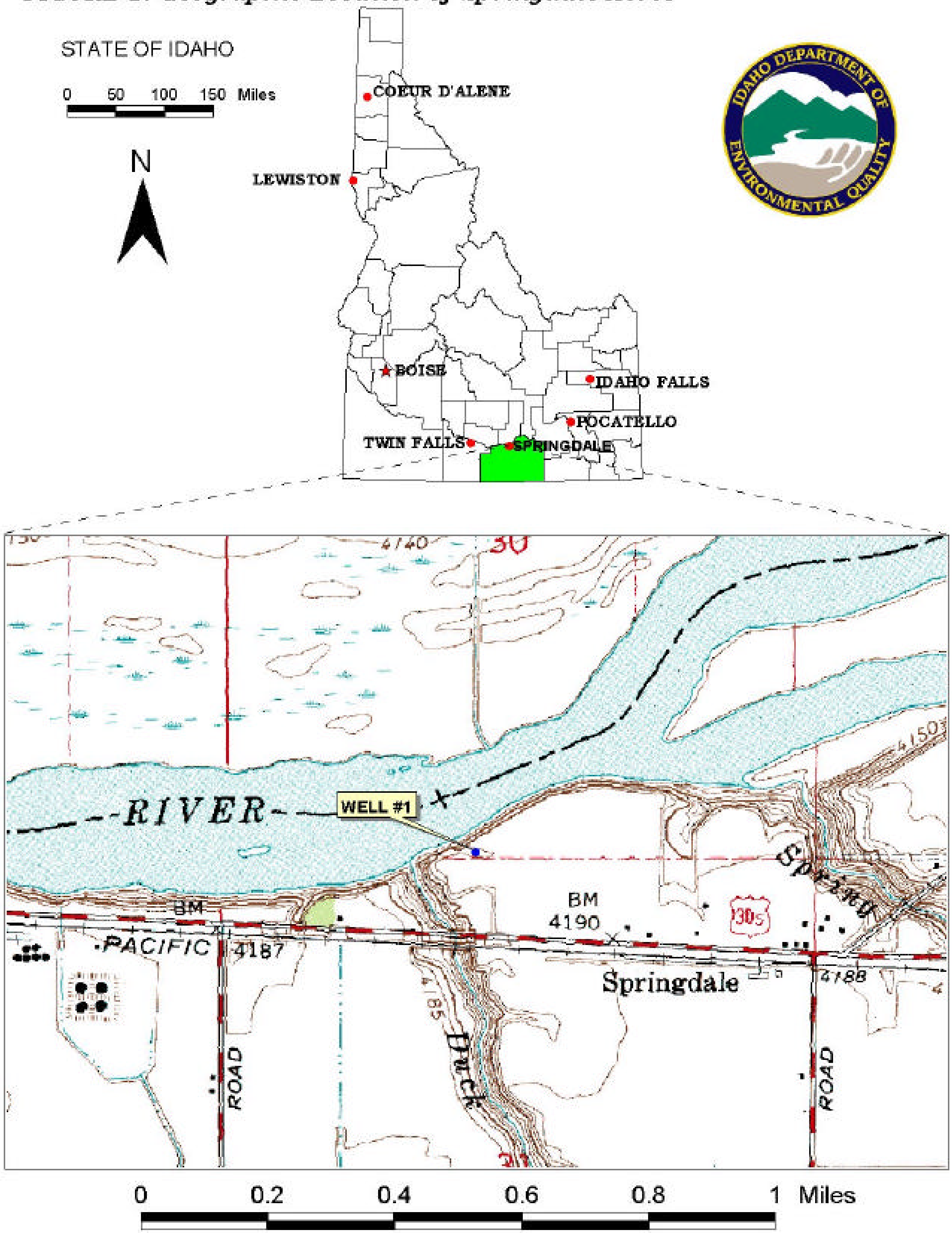
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Goose Creek – Golden Valley aquifer south of the Snake River in the vicinity of the Springdale Acres. The computer model used site-specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below.

The wells extract water from basalt of the Snake River Group to the northeast and east and possibly the Idavada Volcanics to the south of the facility. The Snake River Group consists of basalt flows with thicknesses ranging from a few to several tens of feet. Contacts between the flows and in rubbly zones are the best water producers. The basalt overlies the Idavada Volcanics.

The Idavada Volcanics unit, locally referred to as rhyolite, consists of welded ash and tuff, rhyolite, and some basalt flows. The flows are dense and are commonly reddish-brown, gray, or black. The tuff and ash beds are fine to coarse grained, light colored, and commonly water laden (Crosthwaite, 1969).

Twenty-four years of records since 1964 set the average yearly rainfall in Burley at 8.6 inches (Crosthwaite, 1969). The Albion Range and the fault zone at its base bound the plain on the southeast and the Rock Creek Hills bound the plain on the southwest. The lowland slopes northward from an altitude of about 4,600 feet at Oakley to 4,150 feet at Burley (Crosthwaite, 1969).

FIGURE 1. Geographic Location of Springdale Acres



The regional Snake River Group basalts to the east and northeast mainly influenced the Springdale Acres delineation modeling. However, there was also a southerly component of the flow from the fault zone along the Albion Range. Previous modeling (Garabedian, 1992) in the area was used as a guide.

The delineated source water assessment area for the Springdale Acres wells can best be described as a pie slice originating from the wellhead and extending east of the well 6 miles and widening to 5 miles (Figure 2). The data used by DEQ in determining the source water assessment delineation area is available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and Springdale Acres and from available databases.

The dominant land use outside the Springdale Acres area is irrigated agriculture. Land use within the immediate area of the wellheads consists of an underground storage tank and a leaking underground storage tank. Highway 30 and the Eastern Idaho Railroad are major transportation corridors in the area. The Snake River, Spring Creek, and Marsh Creek also transect the area(Table 1).

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted in May and June of 2002. This involved identifying and documenting potential contaminant sources within the Springdale Acres Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ.

The delineation (Table 1, Figure 2) has 7 potential contaminant sources. These potential contaminant sources include a leaking underground storage tank (LUST) site and an underground storage tank (UST) site.

Highway 30, the Eastern Idaho Railroad, the Snake River, Spring Creek, and Marsh Creek are major sources that cross the delineations. If an accidental spill occurred in any of these sources, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system.

Table 1. Springdale Acres, Wells #1, Potential Contaminant Inventory

Site #	Source Description[1]	TOT ZONE[2]	Source of Information	Potential Contaminants[3]
1	UST Site; open	3-6 YR	Database Search	VOC, SOC
2	LUST Site; farm, open	3-6 YR	Database Search	VOC, SOC
	Snake River	0-3 YR	GIS Map	IOC, VOC, SOC, microbials
	Eastern Idaho Railroad	0-10 YR	GIS Map	IOC, VOC, SOC, microbials
	Highway 30	0-10 YR	GIS Map	IOC, VOC, SOC, microbials
	Spring Creek	0-6 YR	GIS Map	IOC, VOC, SOC, microbials
	Marsh Creek	6-10 YR	GIS Map	IOC, VOC, VOC

[1] LUST = leaking underground storage tank, UST = underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

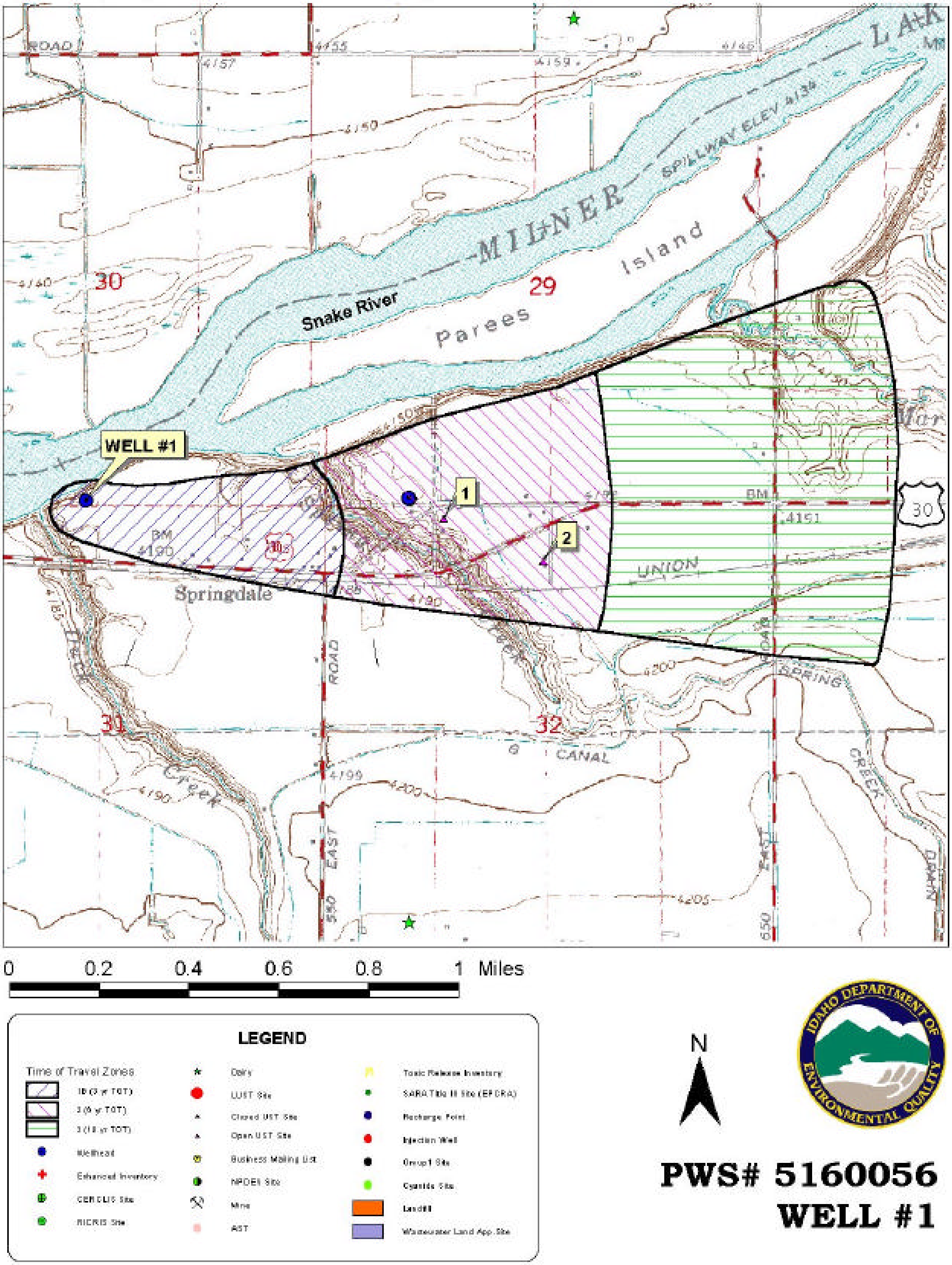
The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity was moderate for the well. Positively affecting the score is the poorly drained nature of area soils, which retard downward movement of particles. Increasing the score was a vadose zone of unknown composition (well log did not record above 190 feet deep), missing lithological descriptions above 190 feet deep to determine if an aquitard is present, and a water table that is less than 300 feet deep (110 feet).

Figure 2. Springdale Acres Delineation Map and Potential Contaminant Source Locations



PWS# 5160056
WELL #1

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The Springdale Acres well rated moderate susceptibility for system construction. The eight-inch well is 245 feet deep and seated into firm sandy gray clay. It is sealed to a depth of 20 feet into an unknown lithology. Two screened intervals exist below the 110 feet deep water table between 212 feet and 225 feet. Information derived from the well log found that the well is located outside of the 100-year floodplain, derives its water more than 100 feet below the water table, and its casing is seated into an impermeable layer. Because the well log does not have any information for depths above 190 feet, it is unknown if the 20 foot deep pudding clay annular seal extends into a low permeability unit. A sanitary survey was not available during this analysis, so it is unknown if the wellhead and surface seal are maintained to current standards.

Though the Springdale Acres Well may have met construction standards at the time of its installation, current well construction standards are stricter. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter casings on wells require casing thicknesses of at least 0.322-inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. The well received an additional point in the system construction category because it does not meet current well construction standards, although they may have at the time of construction.

Potential Contaminant Source and Land Use

The wells rated high for IOCs (e.g. arsenic, nitrate), VOCs (e.g. petroleum products), SOCs (e.g. pesticides), and moderate for microbial contaminants (e.g. bacteria) (Table 2). The transportation corridors, streams, and large amount of irrigated agricultural land contributed the largest numbers of points to the contaminant inventory rating. In addition, county level nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the well, and the delineation falls within priority areas for nitrate (IOC) and the pesticide Atrazine (SOC).

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, storage of chemicals within 50 feet of the wellhead, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land contribute greatly to the overall ranking. In this case, Well #1 rated automatically high for microbials due to a detection (May 1998) of total coliform in the well.

Table 2. Summary of the Springdale Acres Susceptibility Evaluation

Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well	M	H	H	H	M	M	H	H	H	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = automatic high rating due to detection of total coliform (May 1998) in the well.

Susceptibility Summary

Overall, the well's susceptibility ratings are high for IOCs, VOCs and SOCs, and automatically high for microbial contaminants. The automatic ratings result from a detection of total coliform bacteria (May 1998) in the well. Hydrologic sensitivity and system construction scores rated moderate, and land use scores rated high for IOCs, VOCs, SOCs, and moderate for microbials.

No VOCs or SOCs have ever been detected in the water. The only IOCs detected have been barium, fluoride, nitrate, and arsenic. Barium and fluoride have been detected in quantities significantly below their MCLs, as set EPA. Arsenic has been detected at 3 ppb, well below its revised MCL of 10 ppb. Nitrate quantities have been consistently detected below 1.4 ppm, significantly below its MCL of 10 ppm. Total coliform has been detected in the well (May 1998) and occasionally in the distribution system.

County level nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. In addition, the delineation falls within a nitrate priority area and an SOC priority area for the pesticide Atrazine.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. For the Springdale Acres, drinking water protection activities should first focus on correcting any deficiencies outlined in the 1993 sanitary survey. No chemicals should be stored or applied within the 50-foot radius of the wellhead. As there are numerous potential contaminant sources within the delineated area, Springdale Acres should focus on managing hazardous material on-site in a proper manner. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water area should be implemented. Most of the designated areas are outside the direct jurisdiction of the Springdale Acres. Partnerships with state and local agencies and industry groups should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system with a fully developed drinking water protection program will incorporate many strategies, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Crosthwaite, E.G., 1969. *Water Resources in the Goose Creek-Rock Creek Basins, Idaho, Nevada and Utah*, prepared by the U.S. Geological Survey in cooperation with Idaho Department of Reclamation, Water Information Bulletin No. 8.

deSonneville, J.L.J, 1972, *Development of a Mathematical Groundwater Model*, Water Resources Research Institute, University of Idaho, Moscow, Idaho, 227 p.

Garabedian, S.P., 1992, *Hydrology and Digital Simulation of the Regional Aquifer System, Eastern Snake River Plain, Idaho*, U.S. Geological Survey Professional Paper 1408-F, 102 p., 10 pl. I-FY92.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "*Recommended Standards for Water Works.*"

Idaho Department of Environmental Quality, 1997. *Design Standards for Public Drinking Water Systems.* IDAPA 58.01.08.550.01.

Idaho Division of Environmental Quality, 1999, Idaho Source Water Assessment Plan, October, 39 p.

Idaho Division of Environmental Quality, 1997, Idaho Wellhead Protection Plan, Idaho Wellhead Protection Work Group, February.

Idaho Department of Water Resources, 1993. *Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules*. IDAPA 37.03.09.

Attachment A

Springdale Acres
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : SPRINGDALE ACRES   Well# : WELL #1

Public Water System Number 5160056   08/14/2002 4:23:36 PM

1. System Construction		SCORE			
Drill Date	07/11/1991				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	NO	0			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	NO	YES
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	4	4	4	4
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	3	3	3	
4 Points Maximum		3	3	3	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
	Total Potential Contaminant Source / Land Use Score - Zone 1B	15	13	15	10
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		27	23	27	12
4. Final Susceptibility Source Score		13	13	13	12
5. Final Well Ranking		High	High	High	High